

OPEN A  
NEW WORLD OF  
PERSONAL-  
PROFESSIONAL  
COMPUTATION.

Introducing  
the HP-85.





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# Hewlett-Packard's Personal Computer for Professionals.

The HP-85 is a personal computer designed to bring you the capabilities, convenience, reliability, and power that a professional needs. Whether you are a scientist, engineer, or business professional, the HP-85 will help you solve your problems.

## **A complete computer system that gives you portable power.**

The keyboard, CRT display, printer, tape unit, and operating system are all built into one small package. This integration makes the system exceptionally reliable, and gives you full computing power in a single convenient and portable unit.

## **Extended BASIC language solves your problems.**

The HP-85's BASIC is a conversational programming language that is simple to learn and use. Yet more than 150 commands and statements give you the power you need to solve your problems.

## **An advanced graphics system enhances communication.**

A highly detailed graphics system is a standard part of the HP-85. This powerful system is integrated into the BASIC language to give

you amazingly flexible graphics capabilities that add clarity and meaning to your output.

## **Exciting plug-ins expand your system.**

You can quickly and easily double the size of the HP-85's memory by plugging in an optional 16K Memory Module. And special plug-in ROMs (Read Only Memories) will enhance the power and capability of the HP-85's operating system and BASIC language.\*

## **Interface modules let the HP-85 communicate with other devices.**

You can add powerful full-sized Hewlett-Packard peripherals to the HP-85. Like flexible disc systems, plotters, and printers. Four plug-in interface modules\* (HP-IB, RS-232, GP-IO, and BCD) will let your HP-85 interface to other devices and perform as an excellent low-cost instrument controller.

## **High reliability means confidence.**

The HP-85 is the result of Hewlett-Packard's years of experience in computers and personal calculators. This expertise assures you of

that extra measure of quality expected from Hewlett-Packard products.

## **Small size makes the HP-85 portable.**

The HP-85 is small enough and light enough to move when and where you need it. It weighs only 9 kilograms (20 pounds) and is about the same size as a portable electric typewriter. An optional carrying case makes carrying the HP-85 even more convenient.

## **Application pacs provide solutions.**

Hewlett-Packard has developed a series of optional magnetic tape cartridges that provide you with preprogrammed solutions for a variety of applications. And development is continuing on pacs in new areas.\*

## **The HP-85 brings you impressive performance at an affordable price.**

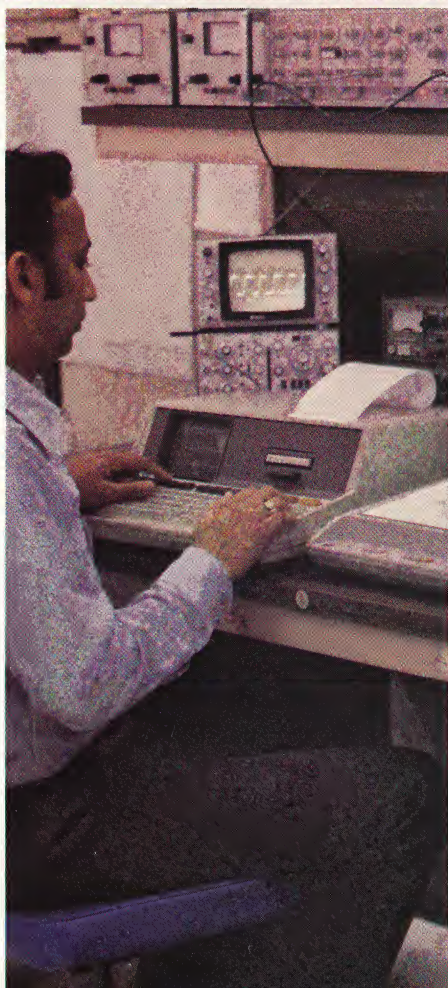
The HP-85 offers the power and capabilities of a desktop computer at an attractive price. The result is a unique combination of price and performance that will appeal to professionals for use in technical, industrial and business applications.

\*Contact your local dealer or sales representative for availability information.



June 1980

Designed for a variety of applications . . .



. . . an integrated system  
with built-in graphics and  
easy-to-use power for  
professionals.



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# A Complete Computer System in One Small Package.

All of the parts of the HP-85 are designed and built to work together. The operating system, BASIC language, graphics system, keyboard, CRT display, printer, and tape drive are all integrated into one small unit. Each part complements the others to give you an extremely efficient computer.

## Turn it on and the HP-85 is ready to use.

With the HP-85 you get the convenience of a single unit with one power cord—no cables confuse and complicate the system. And you don't have to load either the operating system or the BASIC language capability in order to get

started. Both are permanently stored in the HP-85.

## Operation is simple with the dual-mode display.

The adjustable-intensity CRT display operates in two modes. The alphanumeric mode shows you your programs, data, error messages, system comments, and results. The special graphics mode lets you see graphics information completely separate from the normal alphanumeric display. With one command you can switch from the graphics to the alphanumeric display without losing the information on either.

The alphanumeric display shows 16 lines at a time, but display memory holds up to 64 lines. Roll up and roll down keys let you look at the lines you need from memory.

In graphics mode, the screen has  $256 \times 192$ -dot resolution allowing clear, legible images and curved lines.

## The thermal printer is fast and quiet.

The new bidirectional thermal printer provides excellent print quality with adjustable intensity.

At two 32-character lines per second, the printer gives you a quick copy of the graphics or alphanumeric display, outputs from your programs, and copies of your programs. When you copy the graphics display to the printer, the printed information is oriented to allow strip-charting and continuous graphs.

## Magnetic tape cartridges provide permanent storage.

Magnetic tape cartridges supply the HP-85 with high quality digital storage. The high density, large capacity tape cartridges are used for temporary or archival storage of data and programs.

High search speed and data access rates coupled with automatic tape directories give the HP-85 superior storage capabilities. Each magnetic tape cartridge can hold up to 42 separate files (210K bytes of data or 195K bytes of programs).



You can find out what is on any cartridge with the catalog command. It tells you the name, type, and length of every file on the cartridge.

Because of their reliability, these cartridges let you store your software systems and data with confidence.





# Hewlett-Packard's Personal

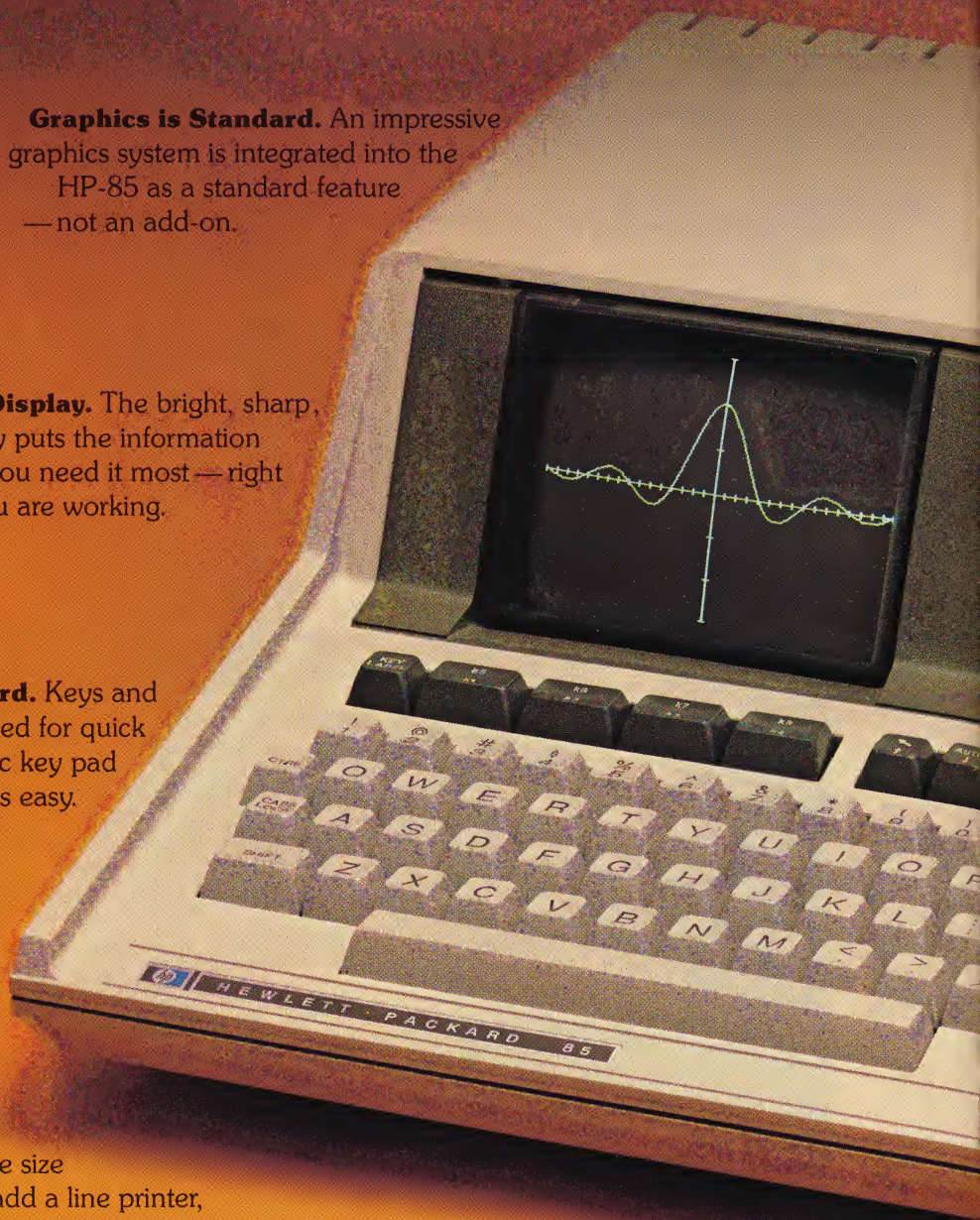
## A complete computer system

**Graphics is Standard.** An impressive graphics system is integrated into the HP-85 as a standard feature — not an add-on.

**Built-in Display.** The bright, sharp, CRT display puts the information where you need it most — right where you are working.

**Typewriter-Like Keyboard.** Keys and functions are carefully positioned for quick operation. A separate numeric key pad makes keying in numbers easy.

**Plug-in Modules.** An optional plug-in module lets you double the size of computer memory. And you can add a line printer, plotter — even a floppy disk system.\* Other optional plug-in modules let you customize and enhance your HP-85 with powerful capabilities like matrix math and advanced programming.\*

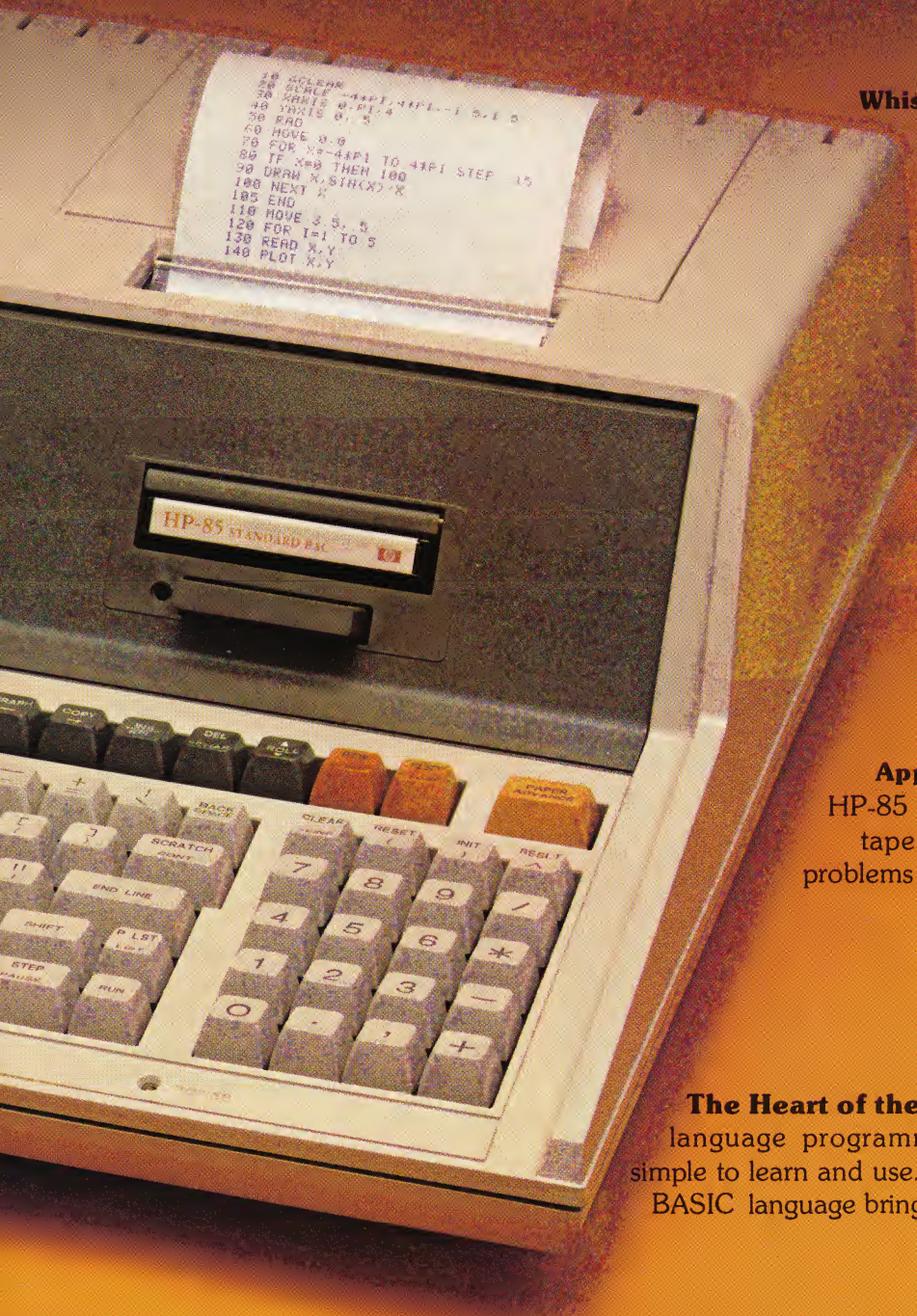


\*Contact your local dealer or sales representative for availability information.



# Computer for Professionals.

em in one small package.



**Whisper-Quiet Printer.** Another advanced capability built into the HP-85. The bidirectional thermal printer is fast and convenient. You can print the contents of the display at any time with a single command.

**Magnetic Tape Cartridges for Storage.** Permanently store your programs and data on high-capacity magnetic tape cartridges.

**Application Pacs.** Customize your HP-85 with prerecorded magnetic tape cartridges. Each one solves problems in a specific discipline.

**The Heart of the System.** BASIC language programming—powerful yet simple to learn and use. The expanded HP-85 BASIC language brings your problems down to size.



# Sophisticated Computing Power at Your Fingertips.

The entire HP-85 operating system and BASIC language, including the advanced graphics system, are permanently stored in the HP-85. This means that the power and capabilities of the HP-85 are always ready to use.

## Advanced graphics provides built-in power.

Graphics helps you turn voluminous and difficult-to-analyze data into meaningful output. With the powerful HP-85 graphics statements, you can draw graphs and plots that clarify your program outputs.

Special user-defined graphics operations give you complete control over every dot on the display. Draw logos, symbols, designs, diagrams, curves, lines—any display you wish.



This display shows just how versatile and sophisticated the HP-85 graphics system can be. The staves, clef marks, notes and rest marks were all drawn with the user-definable graphics operations.

You can take advantage of the graphics power and precision with ease. Because the 16 graphics statements are integrated into the HP-85's BASIC language, you can draw graphs, label axes, plot data, and control the graphics display either from the keyboard or in programs.

The graphics commands allow you to specify the parameters that fit your specific needs. Like the SCALE statement, that allows you to stretch or shrink the X and Y axes independently. You can even input from the keyboard while the HP-85 is in graphics mode, allowing you to enter data or adjust the graphics display until it is exactly the way you want it. Then with a single command, you can copy the graphics display onto the printer.

## Extended BASIC is the key to the HP-85's capability.

Hewlett-Packard chose BASIC for the HP-85 to keep the system simple to use, yet powerful. You can learn to use the HP-85 quickly and begin solving your problems immediately.

The HP-85 BASIC language exceeds the standards set down by the American National Standards Institute (ANSI). This extended BASIC language has been enhanced with some powerful features. Such as the unique software

security system that allows you to protect your data and program files from listing, editing, duplication, overwriting, or even appearing in the catalog.

Other powerful operations include CHAIN and COMMON. They allow you to write programs of unlimited size by breaking them into smaller parts. CHAIN automatically locates, loads, and transfers variables specified by the COMMON statement, and then the new program segment is executed automatically.

The PRINT USING/IMAGE statements give you total control over print and display formats, allowing you to generate output formats for dollars and cents, tabular columns, titles, and headings.

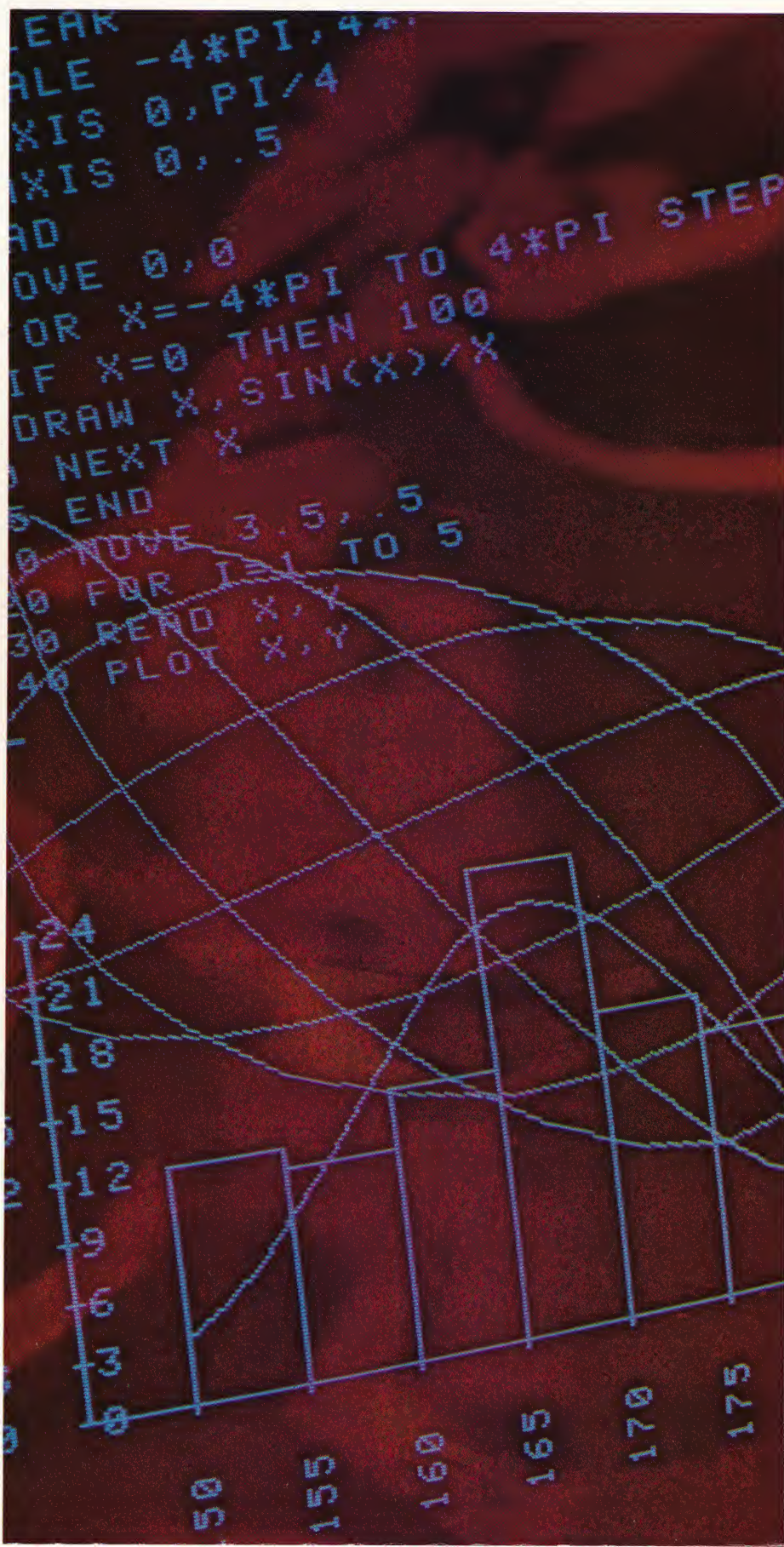
The HP-85 gives you capabilities you would expect in a large computer system. And a few capabilities that you will have trouble finding anywhere else. Here are some examples:

- High data precision and range allows for extreme accuracy. "Full" precision gives you a 12 digit mantissa, and a 3 digit exponent up to  $\pm 499$ . "Short" precision gives you five digits of mantissa with a two digit exponent up to  $\pm 99$ . Integers can be from 0 to  $\pm 99\,999$ .



- Flexible string commands provide alphanumeric text capability.
- The internal clock and three programmable timers allow your programs to time events such as data input or to control instrument sample rates.
- Eight Special Function Keys can be defined to interrupt execution or direct program flow.
- Several statements can be joined on a single line allowing you to conserve program memory.
- The programmable beep operation with distinct, variable-duration tones can be used to signal completion of a subroutine, prompt for input, or highlight output.

With the HP-85 you can perform most of the keyboard operations available on advanced calculators. This "calculator" mode allows you to execute nearly any BASIC statement from the keyboard, rather than in a program. You can type in multiple-statement lines that perform powerful operations, outside of programs.





# Designed for Today and Tomorrow.

## A system you can depend on.

Hewlett-Packard's expertise in computers and calculators is what made the integration of the HP-85 possible. Because all of the internal parts were made to work together and complement each other, the whole system is extremely reliable and efficient. At assembly, each part is individually tested, and then the completed unit is thoroughly tested. The stringent quality assurance standards set up by Hewlett-Packard assure you that even the smallest parts of the HP-85 and all of its options and peripherals are of high quality and reliability.

The HP-85 is the newest and most economical member of Hewlett-Packard's family of powerful BASIC language computers. The family now has seven members ranging from the HP-85 to the HP 3000.

## Customize the HP-85 to match your changing needs.

If you need more computer memory than is available in the standard HP-85, simply plug in an optional 16K Memory Module to double the capacity of the HP-85's memory.

Putting together a customized system is simple with the HP-85. Special ROMs\* give the HP-85 additional power and capability, such as matrix math. And when your HP-85 has peripherals\* like the flexible disc system, printer, and plotter, special ROMs provide all of the commands and capabilities that make the peripherals as easy to use as the HP-85.

To further customize your system, four plug-in interface modules\* (HP-IB, RS-232, GP-IO, and BCD) will connect your HP-85 to a wide variety of peripherals as well as make the HP-85 an excellent low-cost instrument controller.

## Peripherals\* expand the system's capability.

When your application requires repeated on-line data storage or quick access to many large programs, a Hewlett-Packard disc system is appropriate for your HP-85. The discs will give you high-speed on-line storage capacity using removable flexible discs.

You can get exceptionally high quality plots when you add a Hewlett-Packard plotter to your system. The HP-85 will interface with the HP 7225A plotter to give the system excellent graphics capabilities.

And when your application requires a full-size, high-speed line printer, add the HP 2631A printer. It's a bidirectional impact printer that prints 180 characters per second on inexpensive computer paper or custom multipart forms.

## Application pacs provide preprogrammed solutions.

Preprogrammed solutions to special problems help you customize your HP-85. The application pacs come on prerecorded magnetic tape cartridges and are available for a variety of applications including statistics, math, finance, circuit analysis, and waveform analysis. There are even pacs for text editing, games, BASIC training, and linear programming—more pacs in other areas are now being developed. Each pac contains professionally prepared and thoroughly tested programs and systems that provide the solutions you need. Check with your local dealer or sales representative for a complete list of all currently available application pacs.

\* Contact your local dealer or sales representative for availability information.



## Further information.

To locate the authorized HP-85 dealer or sales representative nearest you, contact one of the following offices.

### United States

Hewlett-Packard  
1000 N.E. Circle Blvd.  
Corvallis, Oregon 97330  
Or call toll free  
(800) 648-4711 (except from  
Alaska and Hawaii). In  
Nevada call (800) 992-5710.

### Europe, North Africa, Middle East

Hewlett-Packard S.A.  
7, rue du Bois-du-Lan  
P. O. Box  
CH-1217 Meyrin 2-Geneva,  
Switzerland  
Tel: (022) 82 70 00

### Canada

Hewlett-Packard (Canada) Ltd  
6877 Goreway Drive  
Mississauga L4V1M8  
Tel: (416) 678-9430  
TWX: 610-492-4246

### Other Countries

Hewlett-Packard Intercontinental  
3495 Deer Creek Road  
Palo Alto, California 94304  
Tel: (415) 856-1501  
TWX: 910-373-1267  
Cable: HEWPACK Palo Alto  
Telex: 034-8300, 034-8493

## Warranty and Service.

Hewlett-Packard offers a written warranty on the HP-85 and its accessories and peripherals. A copy of the complete warranty statement is available upon request.

Service for the HP-85 and its peripherals is available at service centers located in many countries around the world. Contact your local dealer or sales representative for more information and service center locations.





## HP-85 Specifications.

**Memory Size:** 16K bytes (10% system overhead), expandable to 32K bytes.

**Quartz Crystal Timer (for system clock and programmable timers):** Time maintained as seconds since midnight, with year and day-in-year. Three independently programmable timers with interrupt intervals from .5 ms to 99,999,999 ms.

**Beeper:** Controllable tone and duration. Frequency approx. 0 to 4575 Hz.

**CRT Display:** 127 mm (5 in) diagonal, adjustable intensity, 256-5 × 7 dot matrix characters, 32 characters per line, 16 line display, 64 line scrolling, underline cursor, 256 × 192 dot plotting area.

**Thermal Moving Head Printer:** Two 32-character lines per second, adjustable intensity, 5 × 7 dot matrix characters, dot-for-dot reproduction of graphics display. Thermal paper roll is 122 m (400 ft) long, 10.8 cm (4.3 in) wide.

**Magnetic Tape Cartridge:** Rewind time is 29 s, search speed is 152 cm/s (60 in/s), read/write speed is 25.4 cm/s (10 in/s), error rate is <1 bit in 10<sup>8</sup>, tape length is 43 m (141 ft), program capacity is 195K bytes, data capacity is 210K bytes, maximum of 42 named files per cartridge.

**Dynamic Range:** -9.999999999999999E499 to -1E-499, 0, 1E-499 to 9.999999999999999E499 (real); -9.99999E99 to -1E-99, 0, 1E-99 to 9.99999E99 (short); -99999 to 99999 (integer).

**I/O Ports:** 4. **I/O Communication:** HP-IB, RS-232, GP-IO, BCD.

**ROM Drawer Capacity:** 6 ROMs.

**BASIC Language:** 42 **BASIC Predefined Functions:** ABS, ACS, ASN, ATN, ATN2, CEIL, CHR\$, COS, COT, CSC, DATE, DTR, EPS, ERRL, ERRN, EXP, FLOOR, FP, INF, INT, IP, LEN, LGT, LOG, MAX, MIN, NUM, PI, POS, RMD, RND, RTD, SEC, SGN, SIN, SQR, TAB, TAN, TIME, UPC\$, VAL, VAL\$.

**65 BASIC Statements:** ASSIGN#, BEEP, CHAIN, CLEAR, COM, CRT IS, CREATE, DATA, DEFAULT OFF, DEFAULT ON, DEF FN, DEG, DIM, DISP, DISP USING, END, FNEND, FORTO STEP, GOSUB, GOTO, GRAD, IF THEN ELSE, IMAGE, INPUT, INTEGER, KEY LABEL, LET, LOAD BIN, NEXT, NORMAL, OFF ERROR, OFF KEY #, OFF TIMER #, ON ERROR GOSUB, ON ERROR GOTO, ON GOSUB, ON GOTO, ON KEY# GOSUB, ON KEY# GOTO, ON TIMER # GOSUB, ON TIMER # GOTO, OPTION BASE, PAUSE, PRINT, PRINT#, PRINT USING, PRINTER IS, PURGE, RAD, RANDOMIZE, READ, READ#, REAL, REM, RENAME TO, RESTORE, RETURN, SETTIME, SHORT, STOP, STOREBIN, TRACE, TRACE ALL, TRACE VAR, WAIT. **16 Graphics Statements:** ALPHA, BPlot, DRAW, GCLEAR, GRAPH, IDRAW, IMOVE, LABEL, LDIR, MOVE, PEN, PENUP, PLOT, SCALE, XAXIS, YAXIS. **20 Commands:** AUTO, CAT, CONT, COPY, CTAPE, DELETE, ERASETAPE, FLIP, INT LIST, LOAD, PLIST, PRINTALL, REN, REWIND, RUN, SCRATCH, SECURE, STORE, UNSECURE.

**Size:** 45.2 cm (17.8 in) deep, 15.8 cm (6.3 in) high, 41.9 cm (16.5 in) wide.

**Weight:** 9.06 kg (20 lb). **Shipping Weight:** 16.78 kg (37 lb).

**Temperature Environment:** 5° to 40°C (41° to 104°F) Operating, -40° to 65°C (-40° to 149°F) Storage.

**Power Requirements:** 90-127 Vac (115 Vac line), 200-254 Vac (230 Vac line), switchable at rear panel.

**Frequency:** 50-60 Hz. **Power Consumption:** 25W.